



MARYLAND

Creating green jobs, clean energy & a sustainable future for Maryland

Green Jobs & Industry **TASK FORCE**

A Report to Governor Martin O'Malley | July 2010



DEAR GOVERNOR O'MALLEY,



In March 2010, at your direction, I called together 31 accomplished and diverse Marylanders to form the Green Jobs & Industry Task Force to determine how we, as one Maryland, can promote green, environmentally-friendly jobs and work toward a more sustainable economy.

I was honored to work with such a distinguished group of professionals so dedicated to improving the economic and environmental well-being of the State, and cannot thank them enough for their time. Comprising State Secretaries, corporate CEOs and Directors, and non-profit and academic leaders, the group never shied away from putting forth innovative and inspirational ideas.

Given the two-month duration of the Task Force, I am impressed by the scope and quality of the recommendations developed in only three meetings. These recommendations are clustered around six key themes, outlined in more detail within the report for your consideration:

1. **Strengthen coordination and communication across State agencies, partners and stakeholders to provide strategic vision for advancing a green economy**
2. **Promote energy and resource efficiency efforts**
3. **Develop and foster clean, local energy production and industrial capacity**
4. **Capitalize upon economic opportunities to restore and protect Maryland's natural resources**
5. **Promote sustainable development practices that create jobs, generate prosperity and make Maryland more self-reliant**
6. **Increase access to capital for green businesses and projects**

This report does not represent the end of the process. Rather, it forms a blueprint for further action to create green jobs, promote economic recovery and protect our State's environment and natural resources.

We look forward to receiving your feedback on these recommendations and to working with you to bring them to fruition.

Sincerely,

A handwritten signature in dark ink, appearing to read 'C. Johansson'.

Christian Johansson
Secretary, Department of Business and Economic Development

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VISION | Why We Convened

The ever-growing push for sustainable governance and business has proven to be a major driver for economies around the world. As environmental concerns rise to the forefront of public awareness, people, companies and industries have adapted or emerged to capitalize on the many new business opportunities and multiple benefits presented by the green economy. Maryland recognizes that it must do the same.

At this juncture, the State is presented with a unique opportunity to capitalize on the emerging green economy to create jobs, stimulate economic development, and support and protect Maryland communities and natural resources. To that end, Governor Martin O'Malley asked the Department of Business and Economic Development to convene the **Green Jobs & Industry Task Force**, inviting a group of public- and private-sector leaders representing diverse businesses and organizations to develop specific and timely recommendations to help Maryland create green jobs and move toward a smarter, greener Maryland economy.

The Task Force was charged with the following mission: In moving towards a dynamic, sustainable, and robust economy, the Task Force will develop recommendations for the State to leverage Maryland's considerable workforce and natural resources to:

- Create and retain green jobs
- Responsibly utilize scarce and finite natural resources
- Protect, restore, preserve, and enhance our environment
- Support the use of clean and efficient energy

THE GREEN ECONOMY | What We Can Build Upon

NATIONAL OVERVIEW

While recovery appears to be underway, as a nation we are still faced with the difficult issues of lingering high unemployment and, at the same time, environmental degradation and decreasing resources in our communities. Governments at all levels are increasingly focusing on nurturing green jobs, businesses, and industries as a means to equitably and convincingly address these challenges. According to The Pew Charitable Trusts, jobs in the U.S. green economy "grew nearly two and a half times faster than overall jobs between 1998 and 2007."¹ During this time period, green jobs, "a mix of white- and blue-collar positions, from scientists and engineers to electricians, machinists and teachers—grew by 9.1 percent, while total jobs grew by only 3.7 percent."²

Over the past year, the federal government has announced a variety of initiatives intended to foster the growth of green jobs. Many of these efforts are funded through the American Recovery and Reinvestment Act, "which allocates nearly \$85 billion in direct spending and tax incentives for energy- and transportation-related programs."³ In addition to competitive grants to be disbursed directly to companies, organizations, and local communities, much of this money is funneled through state governments to support green jobs programs and the development of green technology and industry.

To that end, many states have set up programs and implemented strategies to reduce unemployment and establish leadership in a rapidly-evolving green economy. States play another key role in the development of the green economy – that of providing legislative and policy frameworks. Many states have established local or regional regulations and policies to advance the green economy and its multiple benefits. For example, ten east-coast states, including Maryland, have spearheaded the Regional Greenhouse Gas Initiative (RGGI), "the first mandatory, market-based CO₂ emissions reduction program in the United States."⁴ Furthermore, more than half of U.S. states have taken the initiative to set a Renewable Portfolio Standard for their energy purchases.⁵

While the federal government continues to provide significant funding and support for green jobs and industry sectors, it is clear that state policies and legislation will continue to be major drivers of the growth of the green economy in the U.S. As the U.S. green economy expands, states are less willing to be left behind in a potential economic transformation that promises not only to create and save jobs, but also improve the environment and quality of life for their citizens.

MARYLAND CONTEXT

Maryland is well-positioned to lead the nation in economic recovery and sustainable prosperity, as the O'Malley-Brown Administration has made advancing the green economy a key priority. To expand upon these efforts, Governor O'Malley set forth an aggressive goal of creating, retaining or placing 100,000 green jobs in the State by 2015. Under this administration, Maryland has:

- Implemented the nationally-renowned **EmPOWER Maryland**, the State's initiative to reduce State energy consumption by 15 percent by 2015

- Joined the **Regional Greenhouse Gas Initiative (RGGI)**
- Convened the **Maryland Commission on Climate Change**, which drafted a comprehensive State Climate Action Plan
- Established a **Renewable Portfolio Standard (RPS)** of 20 percent by the year 2022, one of the most aggressive in the nation
- Created the **Maryland Strategic Energy Investment Fund** to finance energy efficiency and renewable energy projects
- Established a **Genuine Progress Indicator** to measure how economic progress impacts Maryland's long-term prosperity
- Set a goal and action plan to **double transit ridership** by 2020
- Drafted a **Maryland Strategic Electricity Plan** to identify ways to reduce energy bills, maintain a sufficient and secure energy supply and address environmental challenges
- Launched the public-private **Maryland Green Building Task Force** and the subsequent State-focused Maryland Green Building Council to provide recommendations on high-performance building projects and policies
- Enacted legislation and developed a plan to **reduce greenhouse gas emissions** by 25 percent by 2020
- Issued an **Energy Industry Workforce Report** with dozens of recommendations and strategies to prepare Maryland's workforce for emerging green economy jobs

- Produced a **Chesapeake Bay Restoration Plan** to create a healthier Bay by 2020
- Launched the Maryland Green Registry to promote and recognize the greening efforts of organizations throughout the State
- Formed the State's interagency **Green Jobs & Industry Working Group** to coordinate efforts to expand green industries and jobs in Maryland

A preliminary study by the Department of Labor, Licensing, and Regulation (DLLR) from the third quarter of 2009 estimates that Maryland is currently home to 75,000 green jobs, concentrated in the following sectors:

Industry Sector	Percent of Total
Professional & Technical Services	23%
Construction	19%
Administrative & Waste Services	15%
Wholesale & Retail Trade	15%
State & Local Government	6%
Educational & Health Services	5%
Other	17%

KEY DEFINITIONS

In drafting recommendations to address the growth of green businesses and jobs in Maryland, the Task Force set forth the following definitions to guide their work:

Green Business:

Any business organization that directly and actively engages in practices to drive sustainable economic prosperity; ensure efficient use and conservation of existing resources; promote renewable and alternative energy production; and, protect, restore, preserve and enhance our environment.

Green Jobs:

Jobs that advance the goals of: driving sustainable economic prosperity; ensuring efficient use and conservation of existing resources; promoting renewable and alternative energy production; and, protecting, restoring, preserving and enhancing our environment.



GREEN WORKGROUP SUMMARIES | What We Evaluated

The Task Force began its discussions with a traditional SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis to focus its efforts, attached as an Appendix in Section VII. This analysis led to the formation of three workgroups charged with developing detailed recommendations for advancing the emerging green economy and supporting green job creation in Maryland, whose areas of focus and discussion are summarized below.

GREENING EXISTING INDUSTRIES

Green products and services and green job creation will grow when businesses in all sectors understand that being environmentally and resource-conscious adds value to the goods and services they produce, and to the sustainability of their profits. Every business can become greener and more profitable through resource efficiency, conservation, reduction, and recycling. A key component of this effort will be driving awareness through an effective marketing and communications strategy.

Critical Issues Identified:

Help business and homeowners:

- Improve energy efficiency
- Generate or use renewable energy
- Prevent, reduce, and mitigate their environmental impacts
- Contribute to the cleanup and restoration of the natural environment

ATTRACTING, RETAINING, AND EXPANDING GREEN BUSINESSES

Many of the fastest-growing and most profitable industries are green; from organic foods, to sustainable manufacturing, to renewable products. With its highly-educated workforce and national reputation of excellence, Maryland is positioned to become a national model and desirable location for green industries seeking to relocate. Financial incentives and targeted business attraction strategies will help expand these companies and drive their need for skilled workers. Further, State government can provide the technical assistance to help our current business partners to adopt greener practices and operations.

Critical Issues Identified:

- Identify sources of financing and access to capital
- Implement effective market development policies



- Implement effective regulatory policies
- Coordinate a common vision across State agencies

PROMOTING GREEN SERVICES, MARKETS AND COMMUNITIES

Just as economic capital can provide steady financial returns, Maryland's natural capital (our natural resources) provides steady environmental, economic, and social returns through ecosystem services. Ecosystem services are those benefits we gain from responsible use of our natural resources, including forests, waterways, and farms. The "true value" of ecosystem services is rarely accounted for in decision-making. By incorporating reasonable valuations of our natural capital and systems into our planning process, Maryland will foster new and existing ecosystem markets, promote local, healthy, and sustainable food sources, support strong communities, and enjoy sustainable prosperity. If we reinvest local economic activity into renewable energy sources, food production, and ecosystems restoration, we will strengthen our regional infrastructure and resiliency.

Critical Issues Identified:

- Advance ecosystem service valuations and markets
- Ensure sustainable and equitable land use
- Advance regional green economies and communities

RECOMMENDATIONS | What We Will Do

In spite of their different focus areas, similar themes emerged from the workgroups, resulting in six overarching recommendations:

1. Strengthen coordination and communication across State agencies, partners and stakeholders to provide strategic vision for advancing a green economy
2. Promote energy and resource efficiency efforts
3. Develop and foster clean, local energy production and industrial capacity
4. Capitalize upon economic opportunities to restore and protect Maryland's natural resources
5. Promote sustainable development practices that create jobs, generate prosperity and make Maryland more self-reliant
6. Increase access to capital for green businesses and projects

Detailed recommendations from the workgroups are presented below within the framework of these six overarching recommendations. Where relevant, the recommendations below highlight also existing strategies and ongoing efforts by State agencies.



Strengthen Partnerships

- Create Green Economy Coordinator
- Catalog State assets
- Lead by example
- Develop comprehensive communications strategy
- Improve green job training & education
- Commission economic impact studies



Reduce Waste

- Promote energy-efficient buildings
- Develop list of target businesses & institutional clients
- Re-dedicate RGGI funds to energy improvements
- Promote water conservation & efficiency
- Strengthen landfill diversion policies
- Assemble manufacturing green teams



Save Money

- Incentivize construction of waste-to-energy plants
- Increase solar energy capacity
- Promote biofuels and biomass power
- Execute wind power strategy
- Foster nuclear energy supply chain
- Encourage on-farm renewable energy & resource-efficient production
- Implement a smart grid system
- Consider additional factors in approving power generation stations
- Improve Clean Energy Incentive Tax Credit*

**Achieved in 2010
Legislative Session*



Protect Resources

- Reduce barriers for water pollution mitigation
- Foster sustainable products
- Advance ecosystem valuation & markets
- Promote transit projects that restore natural resources
- Promote use of electric drive vehicles



Promote Sustainability

- Improve public transportation & transit-oriented development
- Promote sustainable & profitable agriculture
- Advance local, resource-based economies
- Foster regional security & capitalize on federal disaster resilience initiatives



Access Capital

- Provide green finance incentives
- Recruit green financiers
- Adopt policies to enable PACE bonding
- Provide loan guarantees
- Offer competitive grants
- Encourage investment in green companies
- Leverage utilities financing power
- Establish green economic development fund



I. Strengthen coordination and communication across State agencies, partners and stakeholders to provide strategic vision for advancing a green economy

The rapid emergence of the green economy has made it a key focus of several State agencies and numerous private organizations. State agencies should better coordinate strategic planning and activities to encourage the green economy and avoid thinking and acting in silos. In addition, the State should improve communication to the public to highlight resources already in place. By leveraging existing efforts and established programs, Maryland will realize a faster and more efficient return on its investment. To that end, the Task Force recommends that the State:

1.1 Create the position of a Green Economy Coordinator within the Office of the Governor. Charged with directing and coordinating all State efforts related to advancing a green economy, the Green Economy Coordinator within the Office of the Governor would serve as the chief advocate and salesperson for green businesses, industries, and jobs. This position would also spearhead the Green Jobs & Industry Working Group and coordinate State efforts on green projects, especially to fast-track the implementation of major projects with clear economic and environmental benefits.

1.2 Catalogue State assets. In order to advance the green economy and green jobs effectively and efficiently, the State needs to have a better handle on existing resources, including: State programs and initiatives, companies, non-profits, academic institutions and programs, and federal facilities and

labs. This catalogue will help the State determine where Maryland's competitive advantages lie.

1.3 Engage in green practices to "lead by example." The State is a leader in several areas of the green economy, but should always work to stay on the cutting edge of best practices.

1.3.1 Green building. The State should promote green building practices and construction jobs to the extent possible. Currently, State-owned or -leased buildings are subject to the High Performance Green Building Program, and a greater effort should be undertaken to increase use of local construction materials whenever possible to support local job creation.

1.3.2 Renewable energy. The State's own power purchases should be at least in line with the Statewide goal for the Renewable Portfolio Standard, due to reach 20 percent by 2022.

1.3.3 Procurement. The State should make a greater effort to make green purchases, such as recycled materials or energy-efficient appliances, in line with the Green Maryland Act of 2010.

1.4 Develop a comprehensive green economy communications strategy. The State already has numerous programs in place to support a growing green economy and green jobs, but should develop a comprehensive communications strategy to promote them. Key components will include:

1.4.1 Green business attraction and retention

- **Proximity to Washington, D.C.** – A Maryland location offers quick access to federal officials, as well as opportunities to do business with the federal government, especially in energy efficiency and greenhouse gas emissions reduction contracts.
- **Success stories** – The State will highlight prominent green companies in Maryland and their business successes, perhaps through a "Green Business of the Month" program. A similar campaign will be undertaken for green buildings or homes.
- **B-Corporation structure** – Maryland is the first State to pass legislation creating the Benefit ("B"-) Corporation, which gives companies legal protection to incorporate

the “public good” into strategic decision-making. This is in line with the mission of many green businesses, and this unique advantage should be marketed nationally.

- **Proactive energy marketing** – The State, in working with all, even “non-green” business prospects, should provide information about renewable energy and energy efficiency incentives to help ensure reliable, low-cost energy.

1.4.2 Public education and outreach

- **Comprehensive website** – The State should develop a comprehensive, streamlined, and user-friendly website including financial incentives, State initiatives, and a directory of in-state resources. The content of the site should be tailored to specific audiences, including businesses, homeowners, and community groups. One idea is to include data on the return on investment of various energy projects, with links to utility-provided programs and to in-state contractors who can perform the service.
- **Green jobs opportunities** – The State should work to increase awareness among the general public of green jobs opportunities and training programs.
- **Energy efficiency and environmental improvement** – The State should enhance its programs educating the public and businesses, especially manufacturers, on the advantages of green upgrades.
- **Partnering with local organizations and governments** – The State should partner with, and possibly fund on a competitive basis, green organizations that engage in public outreach to businesses and individuals, helping to create and retain green jobs.
- **Strengthen Smart, Green & Growing** – Green job creation will be limited if businesses are not aware of existing programs to assist them. The current Smart, Green & Growing campaign lacks widespread brand recognition among the greater public and the green business community. The State should therefore amplify the existing campaign by targeting specific communities and audiences, and working in concert with local officials to promote their initiatives in tandem.

1.5 Coordinate and improve green job training efforts and education. Several initiatives are underway to promote and fill green job opportunities and training programs. The Task Force recommends the following actions to centrally organize and execute these efforts:

1.5.1 Inventory of current programs. In order to properly identify training needs and gaps in service delivery, the State should conduct an inventory of current training programs, including State programs and those of State-supported community organizations.

1.5.2 Generating demand. The State should help generate demand for these newly-trained workers by providing incentives, such as tax credits, to hire workers that have graduated from green job training programs.

1.5.3 Promote apprenticeship. The State will develop a green pre-apprenticeship program through which the State pays for 50 percent of the intern's wages for a set period, after which the intern would receive a full-time job offer. The State will also work with community colleges to have pre-apprenticeships integrated into their curriculum.

1.6 Commission regular economic impact and environmental valuation studies. To inform the State's decision making on the economic benefits and opportunities of the region's ecological, environmental, and human assets, the State should fully support economic impact studies and valuation analyses to calculate the region's environmental worth, potential revenue for landowners, positive government budgetary impacts, and the direct and indirect jobs that will be created or maintained.

2. Promote energy and resource efficiency efforts

As highlighted in a working paper by the American Council for an Energy-Efficient Economy, “energy efficiency... should





be seen as a critical economic resource”⁶, given its potential to create green jobs and reduce greenhouse gas emissions quickly and efficiently. While the State has made great strides towards increasing public awareness of energy and resource efficiency issues through initiatives such as EmPOWER Maryland (to reduce Maryland’s energy consumption by 15 percent by 2015) there is more to be done. The Task Force therefore recommends that the State:

2.1 Promote green, energy-efficient buildings. In addition to “leading by example” at the State level (see Recommendation 1.3.1 above), the State is also in a position to promote energy efficiency more broadly in the private sector. In fact, high-performance green building practices are seen as “low-hanging fruit” for energy efficiency, and also generate demand for skilled green jobs. Given that the building sector consumes more than 70 percent of electricity and 40 percent of total energy consumed in the U.S.⁷ the Task Force suggests the following:

2.1.1. Time-of-sale energy and resource disclosure. As recommended in the 2010 Maryland Energy Outlook, requiring energy use information at the time of sale of a residence or commercial building will encourage a seller to make energy efficiency improvements to the property. This would simply require providing past utility bills.

2.1.2. Improve the existing Green Building Tax Credit program. The Task Force recommends increasing funding for this tax credit, as well as developing a tiered system offering higher credits for LEED Platinum than for LEED Gold, while eliminating the credit for LEED Silver. The State should

also encourage recipients of the credit to help market the program, serving as “ambassadors” for green building in Maryland. As recommended in the Maryland Energy Outlook, the State should also build upon its existing Green Building Tax Credit program by offering additional credits for zero-energy, low-waste, and low-water-use buildings, or zero-energy ready buildings.⁸

2.2 Develop a list of target businesses and institutional clients. To the extent that confidentiality laws allow, the State should partner with demand response management companies to identify high energy users that are likely to benefit from energy efficiency and renewable energy programs. The State will place a special emphasis on manufacturers in developing this target list, as improvements at their facilities would offer significant job creation opportunities.

2.3 Re-dedicate RGGI funds to energy improvements. As the program was initially developed, funds from Regional Greenhouse Gas Initiative (RGGI) auctions were intended to go largely towards energy efficiency improvements. Due to the recession much of this money has gone towards low-income bill payment instead. As the economy strengthens, the State should look to increase the amount of RGGI funds that go towards projects with proven long-term return potential for the State, such as job-creating energy efficiency improvements. Investments in energy efficiency will result in lower bills to ratepayers for years to come, compounding the benefit.

2.4 Promote water conservation and efficiency. According to the Maryland Environmental Service (MES), water reuse is one of the biggest opportunities in the State to conserve potable water. A statewide plan to implement water conservation and efficiency practices is critical. To both conserve water and help create green jobs, the State should focus on repairing aging water systems, detecting and repairing leaks within homes, assisting agriculture and other industries in adopting highly efficient irrigation and employing new technologies and processes in industry.

2.5 Strengthen landfill diversion policies. Improved waste management policies will reduce space and materials devoted to landfills, as well as the harmful methane emissions that they produce. Furthermore, strategies such as increasing the State’s recycling requirements, charging additional fees

on landfill disposal, and prohibiting the disposal of certain reusable materials would stimulate job creation in industries such as recycling, food waste composting, material recovery facilities (MRFs) and greener manufacturing. The Maryland Department of the Environment (MDE) should be the lead in mapping out a feasibility plan for increased landfill diversion.

2.6 Assemble manufacturing “green teams.” To help manufacturers adopt energy and resource efficiency best practices and make them more competitive in the marketplace, the State should support existing efforts of private organizations to develop “green teams” to consult manufacturing businesses on greening their operations, encouraging them to use local contractors in the process. The State already partners with many of these organizations, which have a vast and active membership. Deploying these teams would also help create business opportunities for Maryland companies and support green jobs.

3. Develop and foster clean, local energy production and industrial capacity

To address rising energy prices and pressing national concerns relating to energy security and independence, Maryland should advance clean, local energy production and industrial capacity (i.e., the production of components or materials for clean energy). Recognizing this, the State has already set a goal of reaching a 20 percent Renewable Portfolio Standard (RPS) by 2022. The economic argument for developing these industries within Maryland is clear. The Maryland Energy Outlook states that “the renewable energy and energy efficiency sectors generate more than 2.5 times as many jobs...as do the oil and natural gas sectors.”⁹ Given limited resources, however, the State must carefully evaluate where its natural strengths lie. To best realize green job expectations, the Task Force carefully evaluated Maryland’s competitive advantages and recommends that the State:

3.1 Incentivize construction of waste-to-energy plants. With an increased focus on renewable energy sources, there is renewed interest in waste-to-energy (WTE) plants as an approach to managing solid waste. WTE is a generally lower-carbon alternative to landfills, which generate methane, a greenhouse gas 21 times more potent than an equivalent amount of CO₂. Further, construction of new WTE facili-

ties generates significant economic activity¹⁰.

3.2 Increase Maryland’s solar energy capacity. Solar energy will be a core contributor to fulfilling the State’s RPS goal and has strong potential for immediate job creation. The Maryland Energy Administration (MEA) will continue to promote existing incentive programs, as well as identify potential large-scale collaborations with public entities, such as the “Clean Horizons” partnership between the University of Maryland and the Department of General Services (DGS). Additionally, the Solar Renewable Energy Credit (REC) marketplace has not operated as intended when the RPS was passed, presenting a key barrier to more solar installations in Maryland. The Task Force recommends that the State work with industry, legislators, the Public Service Commission (PSC), and others to establish a working group to resolve the current challenges with the REC market.

3.3 Promote non-food-sourced biofuels and biomass power development. Maryland is home to abundant naturally-occurring, non-food cellulosic biomass that could be turned into biofuels or used to power biomass plants, including algae, switch grass, wood, animal waste, and others. High capital costs have limited the construction of production facilities in the past. To encourage investment, green jobs, and boost local production, the State could mandate the use of low-level biodiesel blends.

3.4 Execute strategy to develop wind power. Wind energy, including onshore and offshore sources, is the centerpiece of MEA’s strategy to reach Maryland’s 2022 RPS goal. To advance the State’s commitment through the multistate At-





lantic Offshore Wind Consortium to promote wind energy, the State will work with wind companies to navigate federal permitting and regulatory processes. Further, the Task Force recommends continued dialogue with local governments in Western Maryland regarding onshore wind, and with U.S. military interests in Southern Maryland on offshore wind. In addition to the economic benefits of building and operating such a project¹¹, wind farms generate job opportunities through manufacturing since components must be sourced locally.

3.5 Foster a nuclear energy supply chain. Given the potential construction of a third nuclear reactor at Calvert Cliffs, the first in the U.S. since 1973, Maryland faces the unique opportunity to become the home to a nuclear manufacturing supply chain. As the nuclear industry is poised for growth throughout the U.S., the development of this supply chain would result in long-term benefits. To capitalize on these opportunities, the Department of Business and Economic Development (DBED) should launch a targeted business development effort to attract global nuclear supply chain manufacturers to establish a facility and create jobs in the State, possibly providing tax credits for new worker training and capital improvements.

3.6 Encourage on-farm renewable energy and resource-efficient production. Maryland farmers have been beset by a series of shocks, from tightened environmental regulations to rising feed costs. To help farmers save on operational costs, the State will promote energy projects that would reduce their environmental footprint, “greening” these farming jobs. The State is considering three such initiatives in partnership with Maryland’s agricultural community:

3.6.1 Expand the Farm Energy Audit Program. The State has a Farm Energy Audit Program that offers an energy audit, recommendations for energy efficiency improvements, and access to incentives for efficiency improvements to farmers. This program is underutilized and should be advertised more effectively to the farming community.

3.6.2 Energy from animal manure. The State will link farmers to companies whose technologies convert animal manure, such as poultry litter, to energy, potentially through an animal-manure-to-energy summit to inform farmers on the Eastern Shore about the economic benefits of such a program, and link them with technology providers.

3.6.3 On-farm renewable energy generation. DBED and MEA are investigating a pilot project to install solar panels on poultry farms. They will consider other renewable energy programs, such as distributed generation cooperatives, and also explore using power-generating farms as suppliers to the PJM regional grid to offset electricity instabilities during emergencies.

3.7 Implement a smart grid system in Maryland¹². In order to maximize the benefits of newly-developed renewable energy, the State should support the development of smart grid infrastructure in Maryland to carry this electricity effectively and efficiently. Several utility companies have filed requests with the PSC to launch their smart grid programs, and Task Force members urge that the requests be approved to strengthen and improve the State’s energy infrastructure and to support green job creation. These improvements would also tie-in with the federal government’s heightened focus on cyber security and disaster resilience.

3.8 Consider additional factors in approving power generation stations. When reviewing proposals for power generation stations, the PSC should take into account factors of public good such as: job creation and retention; self-sufficiency; environmental consequences; and social impacts. The State should put forth legislation to outline these additional criteria for PSC decision-making¹³. Given that concerns about potential rate increases can limit renewable energy projects, the Task Force recommends that the State undertake a study on the impact of such projects on ratepayers.

3.9 Improve the Clean Energy Incentive Tax Credit.* This program is an income tax credit for the production of clean energy and is scheduled to sunset in 2011. To enhance the job creation potential of this program, it should be extended until 2022, to correspond with the State's RPS goal. Additional improvements should include: increasing the per-kWh incentive; increasing the number of years over which the credit can be claimed to ten; offering the option for up-front payment; and allowing the transfer of tax credits to other parties if the claiming party has no income tax liability.

4. Capitalize upon economic opportunities to restore and protect Maryland's natural resources

Much of Maryland's economic wealth lies in its natural assets – the Chesapeake Bay alone is valued at more than \$1 trillion.¹⁴ To protect its economic future, the State needs to have in place a plan of action to restore and protect these resources. The plan should include continued enforcement of existing policies that both reduce the budgetary burden for environmental cleanup and create job opportunities for Marylanders. Further, Maryland has the potential to become a hotbed for technologies and programs that work to preserve these resources. As such, these activities would truly demonstrate the benefits of the "triple bottom line" approach to advance the green economy. The Task Force's recommendations to capitalize on these opportunities include:

4.1 Reduce barriers for innovative water quality and pollution mitigation technologies. Governor O'Malley has set specific and aggressive targets for restoration of the Chesapeake Bay, and much of this effort will rely upon advanced technologies and innovative programs. The State should proactively solicit companies in this field to launch pilot projects in the Bay, with the opportunity to prove their concepts in Maryland and expand beyond the State if successful. Current examples include floating wetlands, composting toilets, and reclaimed water systems. Further, regulatory and procedural barriers must be identified and resolved to spur economic development and job creation in this area.

4.2 Foster local, environmentally-friendly design and sustainable land use products and markets. Pending legislation and existing regulation pertaining to environmental protection have made environmentally-friendly site design (including natural landscaping and vegetation, rain barrels,

use of local materials, and integrated pest management) a more viable option for developers. To promote these practices and support green jobs, the State's Green Jobs & Industry Working Group will work to fast-track development projects that will minimize their environmental footprint by integrating these green site design practices.

4.3 Advance ecosystem valuation and markets. Jurisdictions can turn to market-based incentives to help protect natural resources through ecosystems markets, which have the potential to bring in millions in capital to the State's rural areas for simply preserving their land. The State will work to become a national epicenter for developing and trading these kinds of conservation credits, while protecting the environment at the same time. To that end, the Task Force recommends charging the Department of Natural Resources' (DNR) Office for a Sustainable Future (OSF) with developing the necessary infrastructure for ecosystems valuation and markets to succeed in Maryland, taking the following steps:

4.3.1 Establish an ecosystems markets working group.

The OSF will establish a public-private Ecosystems Services Working Group to develop options to encourage market-based solutions and policy recommendations in this sector.

4.3.2 Provide incentives to landowners. The buy-in of landowners is critical to program success, and the State should provide appropriate job training, inventories, verification systems, and protocols to help landowners succeed in realizing ecosystem-based revenues. The





State should also work to identify potential incentives or financial assistance to landowners to help offset the costs of certification and participation in the ecosystems valuation marketplace. A low-cost incentive for the State would be to prioritize landowners enrolled in ecosystems markets in the State's purchase of development rights from landowners.

4.4 Promote transportation projects that restore and enhance natural resources. The State will direct federal funds and State appropriations for studies, design, and construction activities associated with restoration activities to projects that will directly support green jobs. For example, Maryland Department of Transportation (MDOT) stewardship projects in ecosystem and habitat restoration have created green jobs through multi-million dollar investments, including the rebuilding of the once-eroded Poplar Island using recycled dredge materials and using recycled concrete from the Chesapeake Bay Bridge to build oyster reefs.

4.5 Promote the use of electric-drive vehicles. In addition to reducing greenhouse gas emissions, the use of electric-drive vehicles has the potential to create jobs in Maryland through the development of a statewide recharging infrastructure, and through opportunities to manufacture vehicle components in the State, as General Motors currently does in White Marsh. To that end, the State can:

4.5.1 Provide incentives. To promote the use of electric-drive vehicles by the public, the State should consider a sales tax exemption for their purchase; extending High Occupancy Vehicle (HOV) benefits to drivers of

electric-drive vehicles; and working with local jurisdictions to develop local parking benefits.

4.5.2 Lead by example. To demonstrate the viability of electric-drive vehicles, the State should explore establishing a partnership with a leading electric-drive vehicle manufacturer to develop plans and policies to promote a charging infrastructure for electric-drive vehicles, as well as to deploy, operate, and maintain a charging network for the vehicles.¹⁵ Such an arrangement may also increase the likelihood of components manufacturing in the State.

5. Promote sustainable development practices that create jobs, generate prosperity, and make Maryland more self-reliant

Improved planning, ranging from development to transportation to agriculture, will be a critical driver to a sustainable economy. Planning for sustainable development projects also has significant job creation and retention potential in the areas of construction, renovation, and farming. Recognizing these benefits, the Maryland Department of Planning is leading the PlanMaryland initiative, a new planning process designed to create a better and more sustainable future for the State. Task Force members recommend the following actions be integrated in the plan:

5.1 Improve public transportation and transit-oriented development. The triple-bottom-line contributions of public transportation projects are clear – in addition to creating thousands of jobs, they provide an economic benefit to households through reduced commuting expenses, and help reduce the State's greenhouse gas emissions. Furthermore, improving public transportation service will help to solve an important challenge facing newly-trained workers, especially in rural areas – finding a way to commute to their new jobs. Support should be given to the plan developed by MDOT to double ridership on public transportation by 2020, which includes taking the following steps:

5.1.1 Drive new legislation and public-private partnerships. Transportation legislation that allows for investments at the federal, State and local levels as well as for public-private partnerships will enable customer-centric services such as high speed rail, bus rapid transit, and integrated transportation systems for seamless travel

and a resulting increase in ridership. Development and maintenance of these systems, which result in fewer emissions, less energy and land use, and more urban development, will generate significant green jobs.

5.1.2 Implement additional service. Major projects that MDOT will undertake in the coming years include the Baltimore Metro Subway's Red Line, the Washington Metropolitan Area Transit Authority's Purple Line, the Corridor City Transitway, and others. It is estimated that construction of the Red Line will generate nearly 10,000 jobs over the next seven years¹⁶.

5.1.3 Enhance existing services. By adding capacity to services such as the MARC train, light rail, commuter buses, and the Baltimore metro subway, the State will increase the number of operational jobs in the mass transit sector, as well as help to make the Maryland economy more efficient through reduced traffic and transit times. In adding capacity, the State should incorporate greater use of cleaner, more environmentally-friendly transit technologies.

5.1.4 Promote transit-oriented development. Transit-oriented development (TOD) promotes dense, mixed-use, and pedestrian-friendly environments in close proximity to centers of mass transit. In promoting this type of development, the State will minimize car use as well as reduce the loss of land to urban and suburban sprawl. MDOT is focusing its current efforts on 12 station areas, which will yield a significant number of jobs from development, construction, and rehabilitation of existing and new infrastructure.

5.2 Promote sustainable and profitable agriculture. Home to over 12,000 farms, Maryland has the ability to generate significant green jobs by promoting sustainable agricultural practices that are better for the farmer and for Maryland's long-term environmental and economic health. The State will undertake a multi-pronged effort to help green the agricultural industry, including the following steps:

5.2.1 Encourage consumers to "Buy Local" and "Buy Green." The Maryland Department of Agriculture (MDA) should continue its "Maryland's Best" campaign to encourage consumers, restaurants, and institutions

(such as schools and correctional facilities) to buy locally and sustainably produced agricultural products, including through farmers' markets and urban agriculture. The State will further facilitate local production by working with local jurisdictions to ensure that zoning does not preclude intelligent, sustainable uses that support local enterprises. Furthermore, the State will set a goal of increasing the number of farmer's markets across the State.

5.2.2 Expand Implementation of Agricultural Best Practices Management. In its plan to restore the Chesapeake Bay, the State has identified key agricultural best practices that would reduce the environmental footprint of farms, including: planting cover crops, constructing livestock waste structures, and building poultry area concrete pads. In addition to continuing to provide MDA's cost-share program to farmers to help them make these environmental improvements, the State should also consider offering additional incentives. For example, if the environmental benefits of implementing a certain best practice can be economically quantified, then the State should consider paying the farmer a certain percentage of that benefit over five years.

5.3 Advance and foster local, resource-based economies.

Resource-based industries – including forestry, agriculture, and fisheries – contribute more than \$18 billion annually to Maryland's economy¹⁷. By investing in our local communities, the State will simultaneously spur economic growth, create and retain jobs in Maryland, and maintain our cultural heritage. The State should expand support for:





5.3.1 Aquaculture. DNR, in consultation with MDA's Aquaculture Development Office, will take the lead in identifying funding opportunities for the construction of aquaculture centers to educate and train displaced watermen in order to foster employment transition and will ensure that grow-out facilities have minimal impact on natural habitats.

5.3.2 Forestry. The widely diverse aspects of forestry offer numerous opportunities to generate green jobs in all parts of Maryland, both rural and urban. The State should both continue and expand programs that offer low-cost capital to forest industries for fostering existing and exploring new market opportunities.

5.3.2.1 Wood Energy. A revolving loan fund should be established specifically for public entities to invest in wood-based energy systems. Such an investment will utilize wood derived from tree maintenance activities and possibly from residues of timber harvests and would reduce energy costs, create local jobs, and infuse local economies.

5.3.2.2 Forest Landowners. Landowners who commit to keeping their lands forested should be eligible for greater access to easement programs, higher rates of financial cost-share assistance, and stronger tax abatement programs; as the generation of forest products contributes to the environment and the economic well-being of communities.

5.4 Foster regional security and capitalize on federal disaster resilience initiatives. As a means of protecting and controlling their resource supplies, including water, food, and energy, federal facilities are increasingly turning to local production and on-site generation. As many of these facilities are located in Maryland, the State should link Maryland clean energy companies, water resources, and local agricultural producers with these federal opportunities to better secure people and places from natural disasters and resource availability shocks, all while supporting green job creation.

6. Increase access to capital for green businesses and projects

For many green companies, the limiting factor for growth is not a lack of demand for products and services. Rather, they face a financial sector that has a limited understanding of the economics of the green marketplace, or a perception of excessive regulatory risk. The result is a hesitance to finance green businesses that are facing a burst of demand, but lack working capital with which to expand their capabilities. This applies not only to companies looking to expand, but also to residential borrowers seeking to finance home energy projects. To help reduce perceived risk for lenders and to enlarge the pool of potential capital available for job-creating green projects, the Task Force recommends that the State:

6.1 Provide incentives for green financing. The State should explore whether it can provide a lower tax rate on a financial institution's profits from qualified job-supporting green projects – or make these profits tax-exempt entirely.

6.2 Recruit green financiers. To help financial institutions better grasp the economics of green lending, the State should launch a campaign in partnership with a group like the Maryland Bankers Association to present on specific case studies demonstrating the business opportunities available to banks through green lending. Through this forum, the State will also gather firsthand feedback on the real or perceived risks or barriers that may be keeping banks from investing in green projects.

6.3 Adopt policies to enable PACE bonding. Through a Property Assessed Clean Energy (PACE) bond program, a loan is given to a property owner to finance an energy efficiency

or renewable energy improvement, which is repaid over 20 years through an assessment on the borrower's property tax bill. The Task Force recommends that the Maryland Clean Energy Center (MCEC) spearhead the effort to work with legislators and local jurisdictions to develop PACE-friendly legislation and to answer outstanding questions such as the legal status of the lien.

6.4 Provide loan guarantees to reduce risk for financial institutions. The State will consider expanding the capabilities of its existing loan guarantee programs to fund green projects by: offering more favorable terms for green projects; increasing the size of the loan that the State can guarantee; or by implementing a set-aside for green projects. Further, DBED's loan guarantee capabilities for green projects will be amplified by the U.S. Department of Energy's recent acceptance of DBED as a qualified partner to provide credit enhancement to financing new renewable energy technologies.

6.5 Offer competitive grants. The State will consider providing matching grants to organizations to green their operations, including manufacturers, local governments, and public schools. Funding sources could include revenue from RGGI auctions or a nominal surcharge on users' electricity bills.

6.6 Encourage investment in up-and-coming green companies. Drawing from lessons in developing one of the top biotechnology clusters in the country, the State will actively support emerging green companies and technologies. With abundant natural and human capital resources, Maryland can become a leader for green technology. According to a Pew study, Maryland ranked sixth in the nation for attracting clean energy investment venture capital.¹⁸ To further this objective, the State can:

6.6.1 Move forward with InvestMaryland proposal. The State should submit legislation to bring the Governor's InvestMaryland proposal, which would create a public-private venture capital partnership, to fruition. The program will support the growth of high-tech companies, including green technology companies, by stimulating private investment in the Maryland Venture Fund, which makes equity investments into early-stage technology companies.

6.6.2 Recruit venture capital firms. To strengthen in-state financial capabilities, the State should actively target and recruit venture capital firms, especially those focused on green businesses, to establish a Maryland presence.

6.6.3 Organize a venture capital forum. DBED and MCEC should take the lead in organizing a venture capital forum, inviting venture capital firms from across the country, highlighting the State's green technologies to give visibility to these entrepreneurs.

6.6.4 Target early-stage entrepreneurs. Recognizing that a green technology company first starts with one person's idea, the State will develop a strategy to target these individuals early to commercialize their technologies in-state. This may include tighter cooperation with universities, including funding for a green "entrepreneur-in-residence" position; and tax credits for entrepreneurs.

6.6.5 Develop a Green Technology Investment Tax Credit. Modeled after the Maryland Biotechnology Tax Credit, the Green Technology Investment Tax Credit would provide an income tax credit equal to 50 percent of an eligible investment for investors in the State's green technology companies.

6.6.6 Support commercialization of new technologies. The State should consider competitive grants to help commercialize new technologies, perhaps through a statewide innovation competition. DBED and MCEC also need to strengthen their relationships with universities in order to better inform researchers of the oppor-





tunities and resources that are available to commercialize promising technologies.

6.6.7 Enable start-ups to monetize net operating losses (NOL). To help start-up companies access the capital they need, the State should consider putting forth legislation enabling start-ups to sell their net operating losses (NOL) as tax write-offs to companies that have a tax liability. This would benefit not only green technology companies, but companies in Maryland's other robust technology sectors, including biotechnology and information technology.

6.6.8 Provide infrastructure for emerging companies. In addition to publicizing the MCEC's clean technology incubator to business prospects, the State should consider opening an additional incubator if the MCEC model is successful. Another model to consider would be that of the Maryland International Incubator, formed through a partnership between DBED and University of Maryland – College Park, to attract foreign-headquartered green companies to Maryland, especially from China and Europe.

6.7 Leverage the financing power of utilities. In other states, such as New Jersey, utilities have played a key role in implementing green energy financing programs. The Task Force recommends that the State reach out to major utilities such as BGE and Pepco, as well as the Public Service Commission, to determine if utilities could be recruited to play a similar role in Maryland, and what policies or regulations would need to be in place to for their participation.

6.8 Establish a green economic development fund. The State should create a green economic development fund to provide grants and loans for green industry projects, with a focus on green technology manufacturing. As suggested in the MEA's 2010 Maryland Energy Outlook, this could be funded through a State public benefit fund, or through a nominal systems charge on utility customers' bills.

NEXT STEPS | Where We Go From Here

These recommendations lay the groundwork for future action by the State to promote economic recovery, green jobs and a sustainable environmental future.

Next steps, to be pursued jointly with the Office of the Governor, will include:

- **Prioritize recommendations, placing greatest emphasis on those with the most potential to create jobs and promote economic recovery immediately**
- **Develop an action plan to implement these recommendations**
- **Outline the budgetary and workforce resources necessary to implement these changes**
- **Quantify potential return on investment through the number of jobs created or retained, revenue generated and kept in-state, and other benchmarks**
- **Draft legislation for consideration for the 2011 General Assembly session to implement recommendations requiring legislative action**
- **Convene short-term public-private working groups to handle specific issues raised within the recommendations**

Throughout this process, the State will continue to work closely with the private sector, including the Task Force members who invested considerable time and effort into developing these recommendations. As evidenced by the nature of the recommendations, the continued involvement and input of private organizations will be critical to advancing a sustainable economy in Maryland.

TASK FORCE MEMBERS | Who We Are

Christian Johansson	Department of Business and Economic Development	Secretary, Chair of Task Force
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Julie Gabrielli	Gabrielli Design Studio	President
Thomas Gaines	Hencken & Gaines	President
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Earl "Buddy" Hance	Department of Agriculture (MDA)	Secretary
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Doug Lashley	GreenVest	President & CEO
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Fred Mason	Maryland State and D.C. AFL-CIO	President
I. Katherine Magruder	Maryland Clean Energy Center	Executive Director
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ACKNOWLEDGEMENTS | Special Recognition

Secretary Johansson would like to offer special recognition to Task Force Members Thomas Gaines of Hencken & Gaines; Kerinia Cusick of SunEdison; and Doug Lashley of GreenVest for volunteering their time and efforts to the State by chairing the Task Force's three Workgroups.

Additionally, Secretary Johansson would like to recognize the following State staff for their contributions: Cathleen Hamel (DBED); David Lewis (DBED); Joe Gill (DNR); David Goshorn (DNR); Sean McGuire (DNR); Harold Bartlett (MDOT); Andy

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APPENDIX I | SWOT Analysis

The Task Force used a traditional SWOT analysis to focus its efforts in the first of the three meetings, which led to the formation of workgroups where specific recommendations could be developed quickly. Identifying Maryland's economic and environmental strengths, weaknesses, opportunities, and threats allowed for the most important issues for Maryland to be addressed in the shortest possible time. The SWOT analysis is summarized in the table below.

STRENGTHS

Port: move products to worldwide markets

Skilled workforce

Strong community colleges, universities

Strong incubator network, research parks

Aggressive RPS in place

Willingness to adopt innovative legislation

Proximity to Washington, D.C. – product visibility, major federal clients

Existing incentives

Quality of life

Existing experience with a tech cluster: biotech

Good transportation system

Significant natural resources – i.e. Chesapeake Bay

Attraction of venture capital

Leadership in environmental restoration

WEAKNESSES

Other countries have already staked their ground in some green technology sectors: E.U., China

Expensive labor; cost of living, taxes

Perception of high regulation, red tape, lack of transparency

Current incentives in place are not enough

Limited understanding among businesses that “greening” is in their interests

Lack of perceived stability/consistency in incentive programs

High expenses for certification, compliance, verification programs

Difficulty in accessing capital

Disconnect between State/county governments

Difficulty in measuring success/ progress

OPPORTUNITIES

Grow green jobs through more incentives, training

State, local governments can lead by example

Greater public consciousness will drive demand

Conduct community-wide carbon/ environmental footprints

Use State/federal procurement to drive demand

Partner with existing local organizations, federal agencies, local governments

Economic growth through Base Realignment And Closure (BRAC)

Better branding of Maryland

Enable networking among green businesses

Promote/expand local R&D: labs, universities

Energy efficiency as a cheap, quick way to generate green jobs

Better enforcement of existing regulations

Passage of federal energy legislation

Anticipated increase in energy prices to make clean energy more economically feasible

THREATS

More aggressive, attractive incentives in other countries/jurisdictions (i.e. E.U.)

Too many green investment dollars leaving U.S., Maryland

Rapid evolution in technology means regulations are quickly out-of-date

APPENDIX II | Glossary & Resources

Benefit (B) Corporations: B Corporation status is a voluntary certification that can be obtained by private or public companies. B Corporations take and implement a pledge to consider all stakeholders when making business decisions rather than solely focusing on shareholder well-being. More specifically, B Corporations agree to consider consumers, the broader community, and the environment in their business decisions.

- B Corporation: bcorporation.net

Ecosystem Valuation & Markets: Ecosystem services are the benefits that nature provides to people and itself. Ecosystem valuation places an economic measure on services provided by nature, which can then be analyzed, compared, and included in traditional benefit-cost scenarios and accounting balance sheets. Then, ecosystem markets place financial value on certain ecosystem services, allowing them to be traded. Such market-based constructs and incentives

are another tool to restore and conserve ecosystem services and expand our green economy.

- Ecosystem Valuation (USDA-funded): ecosystemvaluation.org
- Bay Bank: pinchot.org/current_projects/baybank
- USDA Office of Environmental Markets: fs.fed.us/ecosystemservices/OEM
- EPA Ecosystem Services Research Program: epa.gov/ecology
- Ecosystem Marketplace: ecosystem-marketplace.com
- Millennium Ecosystem Assessment: millenniumassessment.org

LEED (Leadership in Energy and Environmental Design): LEED is a national rating system for green buildings. Under the Maryland High Performance Green Building Program and legislation passed in 2008, all facilities fully funded by the State and greater than 7,500 gross square feet

must meet LEED Silver rating. High performance buildings are shown to reduce resource use and costs, provide healthier indoor environments for workers, and reduce environmental impacts in both construction and maintenance.

- United States Green Building Council's LEED Program: usgbc.org
- Maryland Green Building Council: mdroads.org/msa

PACE (Property Assessed Clean Energy) Financing: Property Assessed Clean Energy Financing is a structure that allows a municipality to provide individuals and businesses with a financing mechanism that eliminates high up-front costs of deep energy efficiency and renewable energy projects. Under a PACE program, the municipality sells bonds to raise capital that is made available to consumers wishing to do energy efficiency or renewable energy projects. The municipality in effect loans the

bond revenues to the consumers, and the consumers repay the loan through an additional assessment on the property taxes, paid using the money saved from the energy project.

- PACE Financing: pacenow.org

Regional Greenhouse Gas Initiative (RGGI): Regional Greenhouse Gas Initiative is a regional carbon dioxide cap-and-trade program made up of ten member states in the Northeast and Mid-Atlantic. Carbon dioxide allowances are marketed through auctions; auction proceeds are divided among member states and used to finance renewable energy and energy efficiency projects. In Maryland, the auction revenues are deposited into the Strategic Energy Investment Fund (SEIF) which is administered by the Maryland Energy Administration and in recent years has been partially diverted to provide energy assistance for low-income rate-payers.

- Maryland Department of Environment: mde.state.md.us
- Regional Greenhouse Gas Initiative: rggi.org

Renewable Energy Certificate (REC):

A Renewable Energy Certificate is a tradable commodity that represents the beneficial attributes of one megawatt-hour (MWh) of electricity generated from a renewable resource. RECs are bought and sold independently of the electrons, which are fed onto the grid to intermingle with electrons generated from other power sources. RECs are also referred to as Renewable Energy Credits, green tags, or Tradable Renewable Certificates. In compliance markets (those with a binding RPS), utilities or load-serving entities fulfill their RPS obligations by purchasing and retiring RECs.

- EPA Green Power Partnership: epa.gov

Renewable Portfolio Standard:

A Renewable Portfolio Standard is a requirement that a portion of the electricity sold to consumers within a state be generated from renewable sources. The exact portion, the date by which the requirement must be achieved, and the definition of qualifying renewable sources vary by state. In Maryland, the RPS requires that 20% of electricity sold to customers be from renewable energy sources by 2022. The RPS further specifies that 2% of all electricity sold must be generated from solar photovoltaics.

- DOE Energy Efficiency and Renewable Energy: eere.energy.gov

- Database of State Incentives for Renewables and Efficiency (DSIRE): dsireusa.org

Smart Grid: The Smart Grid is an automated electric power system that monitors and controls grid activities, ensuring the two-way flow of electricity and information between power plants and consumers—and all points in between. Up and down the electric power system, the Smart Grid will generate billions of data points from thousands of system devices and hundreds of thousands of consumers. What makes this grid “smart” is the ability to sense, monitor, and, in some cases, control (automatically or remotely) how the system operates or behaves under a given set of conditions. In its most basic form, implementation of a smarter grid is adding intelligence to all areas of the electric power system to optimize our use of electricity.

- DOE Smart Grid: oe.energy.gov/smartgrid

Waste-to-Energy: Waste-to-Energy projects typically generate energy (electrical or thermal) through the processing of municipal solid waste. Waste-to-Energy projects employ one of several available technologies including anaerobic digestion, combustion, gasification, and pyrolysis.

- Maryland Energy Administration: energy.state.md.us/facts/renewable/solidwaste.asp
- EPA Municipal Solid Waste: epa.gov/wastes/nonhaz/municipal/

APPENDIX III | Endnotes

¹The Pew Charitable Trusts, “Pew Finds Clean Energy Economy Generates Significant Job Growth,” June 6, 2009, Accessible at: http://www.pewtrusts.org/news_room_detail.aspx?id=53254.

²The Pew Charitable Trusts, “The Clean Energy Economy,” June 2009, Accessible at: http://www.pewcenteronthestates.org/uploadedFiles/Clean_Economy_Report_Web.pdf, Page 4.

³The Pew Charitable Trusts, “Pew Finds Clean Energy Economy Generates Significant Job Growth.”

⁴RGGI Inc., “About RGGI,” Accessible at: <http://www.rggi.org/about>.

⁵U.S. Environmental Protection Agency, “Renewable Portfolio Standards Fact Sheet,” Updated April 2009, Accessible at: http://www.epa.gov/chp/state-policy/renewable_fs.html.

⁶American Council for an Energy-Efficient Economy, “Energy and the Economic Imperative,” April 26, 2010, Accessible at: <http://www.aceee.org/conf/30th/observations.pdf>, Page 1.

⁷Maryland Energy Administration (MEA), “Maryland Energy Outlook,” January 2010, Accessible at: http://www.energetics.com/resource-center/products/plans/Documents/MEO_Final_Report.pdf, Page 37.

⁸According to the Maryland Energy Outlook, “The U.S. Department of Energy (DOE) defines a zero energy building as a residential or commercial building with greatly reduced needs for energy through efficiency gains (60-70% less than conventional practice), with the balance of energy needs supplied by renewable technologies” (Page 33).

⁹MEA, “Maryland Energy Outlook,” Page 31.

¹⁰According to Covanta Energy Corporation, a 1,600 tons-per-day facility can generate up to \$1 billion in economic activity, including 300-500 direct jobs and 700-1,000 indirect jobs during construction.

¹¹According to MEA’s Maryland Energy Outlook, a 100-megawatt wind farm generates 500 direct construction jobs and 574 indirect and induced jobs during construction; during operation, the same farm would employ 27 people directly and support 22 indirect and induced jobs (Page 81).

*Accomplished in 2010 Legislative Session

¹²Because proposed “smart grid” proposals are pending before the PSC at this writing, Chairman Doug Nazarian took no part in the consideration or inclusion of this recommendation.

¹³PSC Chairman Doug Nazarian took no part in the consideration or inclusion of this recommendation.

¹⁴In 1989, the University of Maryland valued the Chesapeake Bay at \$678 billion. Adjusted for inflation, that value is estimated today at more than \$1 trillion.

¹⁵MEA, “Maryland Energy Outlook,” Page 99.

¹⁶Clinch, Richard. “The Economic and Job Impacts of the Construction of the Red Line Mass Transit System on Baltimore City,” The Jacob France Institute, November 2009, Accessible at: http://www.gobaltimorelinedline.com/pdf/Econ_and_Job_Impacts_Study.pdf, Page 2.

¹⁷Salisbury University, “Impact of Resource-Based Industries on the Maryland Economy,” 2005 data adjusted for inflation to 2008, Accessible at: <http://www.marbidco.org/bEACONS%20STUDY.pdf>.

¹⁸The Pew Charitable Trusts, “The Clean Energy Economy,” Page 35.

For more information about participating State agencies, please visit the websites below:

MDA (Department of Agriculture): mda.state.md.us

DBED (Department of Business and Economic Development): ChooseMaryland.org

DGS (Department of General Services): dgs.maryland.gov/

DHCD (Department of Housing and Community Development): mdhousing.org

DLR (Department of Labor, Licensing, and Regulation): dlr.state.md.us/

DNR (Department of Natural Resources): dnr.state.md.us/

MDOT (Department of Transportation): mdot.maryland.gov/

MDE (Department of the Environment): mde.state.md.us/

MEA (Maryland Energy Administration): energy.state.md.us/

GDU (Governor’s Delivery Unit): gov.state.md.us/statestat/gdu.asp

GWIB (Governor’s Workforce Investment Board): mdworkforce.com/

Governor’s Office: governor.maryland.gov

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